REMARKS

Claims 1-2 have been examined. Claim 1 has been amended. No new subject matter is added. Reconsideration and allowance of all claims are respectfully requested in view of the following remarks.

Claim Rejection under 35 U.S.C. § 103(a)

The Examiner rejects claims 1-2 under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of Matuszawa Kinya (JP 408-191561A hereinafter "Kinya")[1]. Applicants respectfully traverse the rejection.

The Examiner asserts that Kinya compensates for the deficiencies of the admitted prior art by teaching an outer molding made from a thermosetting resin. In addition, the Examiner asserts that the insulating layer would inherently be resistant to permeation by sulfur compounds. Applicants respectfully disagree.

Applicants identify a different problem than the admitted prior art or Kinya and solve this problem by providing a different solution than the admitted prior art or Kinya. Applicants teach that when a conventional stepping motor 1 is mounted to an automobile continuously variable transmission, it is entirely immersed in oil, which contains sulfur and organosulfur compounds (See page 4, lines 13-29). An example of a problem with immersing the stepping motor 1 in the oil is that the sulfur and the organosulfur compounds in the oil permeate the bobbins 53, the outer moldings 54, and the electrically-insulating layer 52, thereby reaching the copper wire 51

[1] An English language translation of relevant portions of the Kinya reference has been included in the attached Appendix.

(See id.). As a result, chemical reactions occur at the surface of the copper wire 51, giving rise to a state of decreased adhesive strength of the electrically-insulating layer 52 to the copper wire 51 (See id.). Another problem is that when the temperature of the oil becomes greater than vaporization temperatures of volatile components in the oil due to heat generated by the coils 7, the electrically-insulating layer 52 of the conducting wires 50 is more likely to be permeated by sulfur and there is a greater likelihood of short circuiting occurring between the conducting wires 50 (See page 5, lines 13-18).

Applicants solve at least these problems by providing at least "means for preventing sulfur compounds from permeating said electrically-insulating layer," as recited in Applicants' claim 1. Specifically, Applicants teach solving these problems by providing "preventing means comprising forming said electrically-insulating layer of a material resistant to permeation by sulfur compounds," as further recited in Applicants' claim 1.

By curing the thermosetting resin, the spaces between the molecules of the thermosetting resin become narrower. As a result, materials which are capable of permeating the resin are limited to materials having molecular sizes which are smaller than the spaces between the molecules of the thermosetting resin. Moreover, only specific thermosetting resins, for example, modified polyimide resin, thermosetting epoxy resin , phenol resin, etc., are resistant to permeation by sulfur.

In contrast, Kinya teaches solving a problem with noise that is generated by electromagnetic vibration of the coil caused by switching of the coil current at high speed. In order to solve this problem, the thermosetting resin is cured after the thermosetting resin is impregnated between the coil conductors and between the coil conductor and the stator yoke by

using the vacuum impregnating process or the self-fusion process, thereby the coil conductors and the stator yoke and the coil conductors are fixed to each other.

In the first embodiment of Kinya, the thermosetting resin such as the epoxy resin and the unsaturated polyester resin is impregnated in the bobbin on which the winding is wound, and then the thermosetting resin is cured by a heating process, thereby fixing the winding and the bobbin to each other.

In the second embodiment of Kinya, the self welding winding 30 is wound on the bobbin, and then the bobbin with the self welding winding 30 is heated to cure the self welding winding, thereby the winding and the bobbin are fixed to each other. The self welding winding is constructed by baking the insulating film 32 on the conductor 31 and then baking the fusion coating 33 made of the reactive high molecular material on the insulating film 32. However, Kinya does not teach about the material of the insulting film 32.

In the third embodiment of Kinya, the thermosetting resin is impregnated between the yokes X and Y and the coil portion 12, and then, the thermosetting resin is cured.

As described the above, though Kinya discloses the impregnant made of the thermosetting resin, Kinya does not teach about the material of the insulting film 32.

Further, Kinya also does not teach or suggest that, in an electromagnetic device used in oil, sulfur and organosulfur compounds contained in the oil permeate the insulating layer coated on the copper wire, reach the surface of the copper wire, and act upon the copper wire to form sulfur compounds on the surface of the copper wire, thereby decreasing the adhesive strength of

the insulating layer against the copper wire. Moreover, Kinya does not teach that the thermosetting resin can prevent sulfur compounds from permeating the copper wire.

Thus, there would have been no suggestion or motivation to provide the acknowledged prior art with the impregnant made of the thermosetting resin in Kinya for the purpose of preventing sulfur and organosulfur compounds contained in the oil from permeating the insulating layer coated on the copper wire in the acknowledged prior art. Further, even if Kinya was combined with the acknowledged prior art, it would not have been obvious to modify the insulating layer of the acknowledged prior art with the thermosetting resin for the purpose of preventing sulfur and organosulfur compounds contained in the oil from permeating the insulating layer coated on the copper wire.

Because Kinya does not teach or suggest preventing sulfur compounds from permeating the electrically-insulating layer in order to prevent sulfur from reaching the conducting wire, Applicants submit that Kinya does not teach or suggest all of the recitations of Applicant's claim 1. Thus, Applicants' claim 1 is patentable over Kinya and the rejection should be withdrawn.

In addition, Applicants submit that claim 2 is also patentable over Kinya at least by virtue of its dependency from independent claim 1, and therefore, the rejection of claim 2 should also be withdrawn.

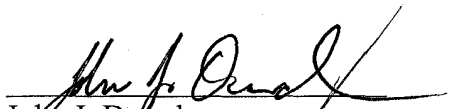
Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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